

O I P E  
JAN 31 2003  
PATENT & TRADEMARK OFFICE  
Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

1/36

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D4-1 →



FIG. 1



1 cttcaaagg tccccatga aaattactta aacgttgac acaacgttc agaaaatctt  
61 ttgtggaaa agaaaaaggaa attcaagtgt tgagtctcag caggaggtaa gctaatgcag  
121 cttaaaataa tgccgaaaaa gaogcgctt tctgcggca gagtgcctt gattctctc  
181 ctgtgccaga tgatttagtgc actggaaatg cctcttgcac caaaacttct tgaagacttg  
241 gtacagcctc caaccatcac ccaacagtct ccaaaagatt acattattga ccctcgggag  
301 aatattgtaa tccagtgtga agccaaaggg aaaccgcggc caagctttc ctggacccgt  
361 aatgggactc atttgacat cgataaaagac cctctggta ccaatgaagcc tggcacagga  
421 acgctcataa ttaacatcat gagcgaaggg aaagctgaga cctatgaagg agtctatcag  
481 tgtacagcaa ggaacgaacg cggagctgca gtttctaata acattgttg ccgccccatcc  
541 agatcaccat tgtggaccaa agaaaaacit gaaccaatca cacttcaaaag tggcagtc  
601 ttagtacttc cctgcagacc cccaaatggta ttaccaccac ctataatattt ttggatggat  
661 aattcccttc aaagacttcc acaaagttag agagtttctc aaggtttga tggggacctt  
721 tattttcca atgtccccc agaggacacc cgcgaagact atatctgtt tgctagattt  
781 aatcataactc aaaccataca gcagaagcaa cctatttctg tgaaggtgat ttcagtggat  
841 gaattgaatg acactatagc tgctaaattt agtgacactg agtttttatgg tgctaaatca  
901 agtagagaga ggcaccaac atttttaact ccagaaggca atgcaagtaa caaagaggaa  
961 ttaagaggaa atgtgcttc actggagtgc attgcagaag gactgcctac cccaaatttt  
1021 tactggccaa aggaagatgg aatgcaccc aaaaacagga cagttataa gaatttgag  
1081 aaaaaccttgc agatcattca tgtttccgaa gcagactctg gaaattacca atgtatacgca  
1141 aaaaatgcac tagagccat ccaccatacc atttctgtt gagttaaagc ggctccatcc  
1201 tggatcacag cccctcaaaa tcttgcgt tgcccgagg aggatgggac ctgtatctgc  
1261 agagctaatg gcaaccccaa acccagaatt agctggtaa caaatggagt cccaaatagaa  
1321 attgccccctg atgaccccg cagaaaaata gatggcgata ccattatttt tcaaatgtt  
1381 caagaaagat caagtgcgt atatcaatgc [atgcctcta atgaatatgg atat]tactg  
1441 gcaaacgcac ttgttaatgt gctggctgag ccaccacgaa tcctcacacc tgcaaacaca  
1501 ctctaccagg tcattgcataa caggcctgtt ttactagact gtgccttctt tgggtctcc  
1561 ctccccacca tcgagtggtt taaaggagct aaaggaatg ctcttcgtt agatatttt  
1621 gtttacatg aaaaatggaaatc tttggaaatc aaagatgtt catggatcgt taaagaaatt  
1681 cctgtggccc aaaaaggacag tacaggaact tatacgtgt tgcaaggaa taaaattagg  
1741 atggcaaaaga atgaaggtaa ctacacccc gaaatgcac ttgtgcacaa agggagcatg  
1801 gtgtcctttt aatgcacaaatg gaaacatgtt cacacccat cccctactgt cctgtggctg  
1861 aaggacaaca gggaaactgcc cagtgtgaa agtttactg ttgacaaggaa tcatctatgt  
1921 gtatgtatg tcagtgcacg tgacagcggg accttacacgt gtgtggccaa caccactctg  
1981 gacagcgtct ccggccagcgc tggcttgc tttgttgcctt ctactccaa tccagctccc  
2041 gtttacatg tcccaatcc tcccttgcac ttatgtatgtt cagatcaact tgacaaaaatg  
2101 gttcagctgtt catggacccc aggcatgtac aacaatagcc ccattacaaa attactcatc  
2161 gaaatgttgcac atgcaatgcac caagcccgaa ctgtggcacc accaaactgtt agtttctgg  
2221 acacagacca cagcccgatc gaagctgtt ccttacgttca octactccctt ccgcgtgtatg  
2281 gcagtgttgcac gtttggaa gatgttgc cgcgggggt ctgagcgtt tttggcgtt  
2341 gcctcagaac cagataaaaa ccccacatgtt gttggaaaggac tggatcaga gcctgtataat  
2401 ttggagatgtt cgttggaaaggcc ttgtatgtt ttcgtatctt atggcccgatc ctttcgtatc  
2461 aatgttagtgc ggcggccatgtt gatgttgcgtt tttggcgtt

FIG.2A



2521 gatatccaaat atattgtctc aggacacgcca acctttgttc catacctgtat caaagttcag  
2581 gccctgaatg acatggggtt tgccccccgag ccagctgttag tcatgggaca ttctggagaa  
2641 gacctcccaa tggtggtctcc tgggaacgtg cgtgtgaatg tggtaacag taccttagcc  
2701 gaggtgcact gggacccagt acctctgaaa agcatccgag gacacctaca aggctatcg  
2761 atttactatt ggaagaccca gagttcatct aaaagaaaaca gacgtcacat tgagaaaaag  
2821 atcctcacct tccaaggcag caagactcat ggcatgttgc cggggctaga gcccittagc  
2881 cactacacac tgaatgtccg agtggtaat gggaaagggg agggcccagc cagccctgac  
2941 agagtcttta atactccaga aggatcccc agtgctccct cgtcttggaa gattgtgaat  
3001 ccaacactgg actctctcac ttggaaatgg gatccaccga gccacccgaa tggcattttg  
3061 acagagtaca ctttaaagta tcagccaatt aacagcacac atgaatttagg ccctctggta  
3121 gatttggaaa ttccctgccaa caagacacgg tggactttaa aaaatttaaa ttccagcact  
3181 cgatataagt ttatattctt tgcacaaaca tcagcaggat caggaagtca aattacagag  
3241 gaagcgttaa caactgtgga tgaagctggt attcttccac ctgtatgtagg tgcaggcataa  
3301 gttcaagctg taaataccag gatcagcaat ttactgtcg cagctgctga gacctatgcc  
3361 aatatcagtt gggaaatatga gggaccagag catgtgaact ttatgttga atatgttga  
3421 gcaggcagca aagaagaatg gaaaaaagaa attgtaaatg gtctctggag ttctttggg  
3481 ttaaagggtc taatgccagg aacagcatac aaagttcgag ttggtgctgt gggggactct  
3541 gttttgtga gttcagagga tttgttggat acaggcccg cgtggcaag ccggcagggtg  
3601 gatattgcaa ctcaaggctg gttcatttggt ctgtatgttg ctgttgctct ctttatctt  
3661 attttgttga ttgttgcctt catcagaaga aacaagggtg gtaaatatcc agttaaagaa  
3721 aaggaagatg [cccatgctga ccctgaaatc cagcctatga aggaagatga tggacattt  
3781 ggagaataca gtgtatgcaga agaccacaag ctttggaaaa aaggaagtcg aactccttca  
3841 gacaggactg taaaaaaaaga agatagtgc gacacgcctag ttgactatgg agaagggtt  
3901 aatggccagt tcaatgagga tggctccctt attggacaat acatgttggaa gaaagagaaa  
3961 gagccggctg aagggaaacga aagctcagag gcaccttctc ctgtcaacgc catgaattcc  
4021 ttgtttaat tttaagctc aaagccaaata ttccatttct ctgtatgtt tatccatagc  
4081 tcttgggtt cagccctctc atactatgaa catatgggtt gagatgtat ttt

FIG. 2A (CONT')



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS  
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Appl. No.: 09/301,380

4/36

'MPKKKRLSAGRVPILFLCQMIASALEVPLDPKLLEDLVQPPTIT  
QQSPKDYIIDPRENIVIQCEAKGKPPPSFWTRNGTHFDIDKDPLVTMKPGTGLIIN  
IMSEGKAETYEGVYQCTARNEGAASNNIVVRPSRSPLWTKEKLEPITLQSGQSLVL  
PCRPPIGLPPPIIFWMDNSFQRLPQSERVSQGLNGDLYFSNVLPEDTREDYICYARFN  
HTQTIQQQQPISVKVISVDELNDTIAANLSDTEFYGAKSSRERPPTLTPEGNASNKE  
ELRGNVLSLECIAEGLPTPIYWAKEDGMLPKNRTVYKNFEKTLQIIVHSEADSGNYQ  
CIAKNALGAIHHTISVRVKAAPYWITAPQNLVLSPGEDGLICRANGNPKPRISWLTN  
GVPIEIAPDDPSRKIDGDTIIFSNVQERSSAVYQCNASNEYCYLLANAFVNVAEPPR  
ILTPANTLYQVIANRPALLDCAFFGSPLPTIWFKGAKGSALHEDIYVLHENTLEIK  
DATWIVKEIPVAQKDSTGTYTCVARNKLGMAKNEVHLQPEYAVVQRGSMVSFECKVKH  
DHTLSLTVLWLKDNRLEPSDERFTVDKDHVVADVSDDSGTYTCVANTLDSVSASA  
VLSVVAAPTPTPAPVYDVPNPPFDLTQQLDKSVQLSWTPGDDNNSPITKFIIYEEDA  
MHKPGLWHHQTEVSGTQTTAQLKSPYVNYSFRVMAVNSIGKSLPSEASEQYLTKASE  
PDKNPTAVEGLGSEPDNLITWKPLNGFESNGPGLQYKVSWRQKDGDEWTSVVANV  
SKYIVSGTPTFVPYLIKVQALNDMGFAPEPAVVMGHSGEDLPMVAPGNVRVNVNSTL  
AEVHWDPVPLKSIRGHLQGYRIYYWKTQSSSKRNRRHIEKKILTQGSKTHGMLPGL  
PFSHYTLNVRVVNGKGECPASPDRVFTNTPCGVPSAPSSLKIVNPTLDSLTLWDPPSH  
PNGILTEYTLKYQPINSTHELGPLVDLKIPANKTRWTLKNLNFSTRYKFYFYAQTSAG  
SGSQITEEAVTVDEAGILPPDVGACKVQAVNTRISNL TAAAETYANISWEYEGPEH  
VNFYVEYGVAGSKKEEWRKEIVNGRSFFGLKGLMPGTAYKVRVGAVGDSGVSSEDVF  
ETGPAMASRQVDIATQGWFIGLMCAVALLILILLIVCFIRRNGGGKYPVKEKEDAHAD  
PEIQPMKEDDGTFGEYSDAEDHKPLKKGSRTPSDRTVKKEDSDSLVDYGEVGNGQFN  
EDGSFIGQYSGKKEKEPAEGNESSEAPSPVNAMNSFV"

FIG. 2B



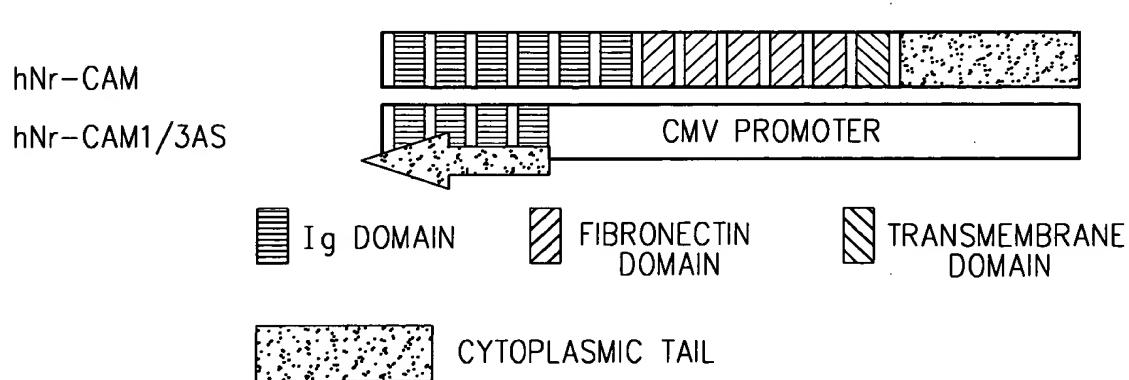
Title: NP-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES FOR TUMORS  
 Applicants: Gerald P. Murphy *et al.*  
 Appl. No.: 09/301,380

5/36

FIG. 2C

HUMAN Nr-CAM	4097	TCTCATACTATGAACATATGGTAGAGAGTATTTTC	4134
D4-1	1	TCTCATACTATGAACATATGGTAGAGAGTATTTCTGCTGT *****	44
RAT Nr-CAM	3713	TCTCATACTATGGACATATGGTAGAAAGAACATGTTCTGCGGT	3757
D4-1	45	ATGTTAGTATTATGAGAATAGTTACAGCAAAACATAACTCACT *****	88
RAT Nr-CAM	3758	ATATGAGTATTATAAGAACAGAGCAAGAACATAACTCAGTCAGT	3801
D4-1	89	CAAAGTATATGTTAATATGAACCTGGAAATGCAAAACTGCATACTT *****	132
RAT Nr-CAM	3802	CAGATGATACTGTTAATATGAACCTGGGTGAAAAGG	3836
D4-1	133	TTTCATTCAAAATGGTATTCTGATTCCTAAAAAAA	176

FIG. 2D





Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

6/36

FIG.3A

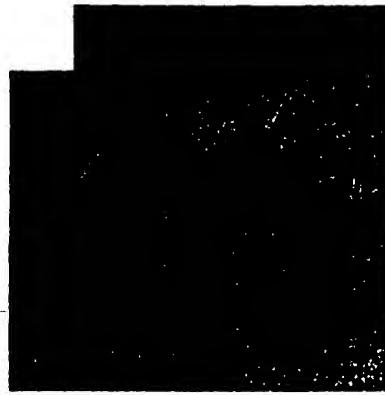


FIG.3B



FIG.3C

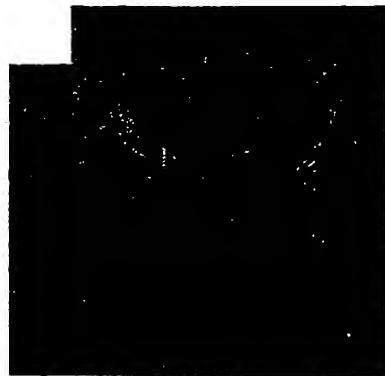
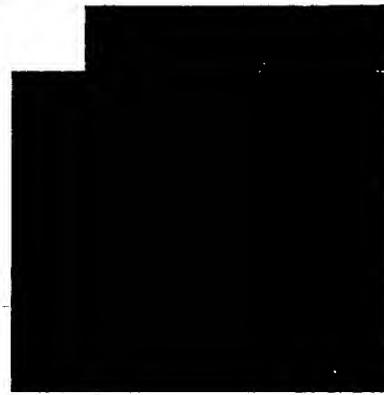


FIG.3D



FIG.3E

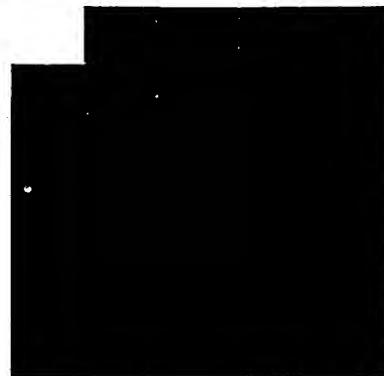


FIG.3F



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIA STIC USES  
FOR TUMORS

Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

7/36

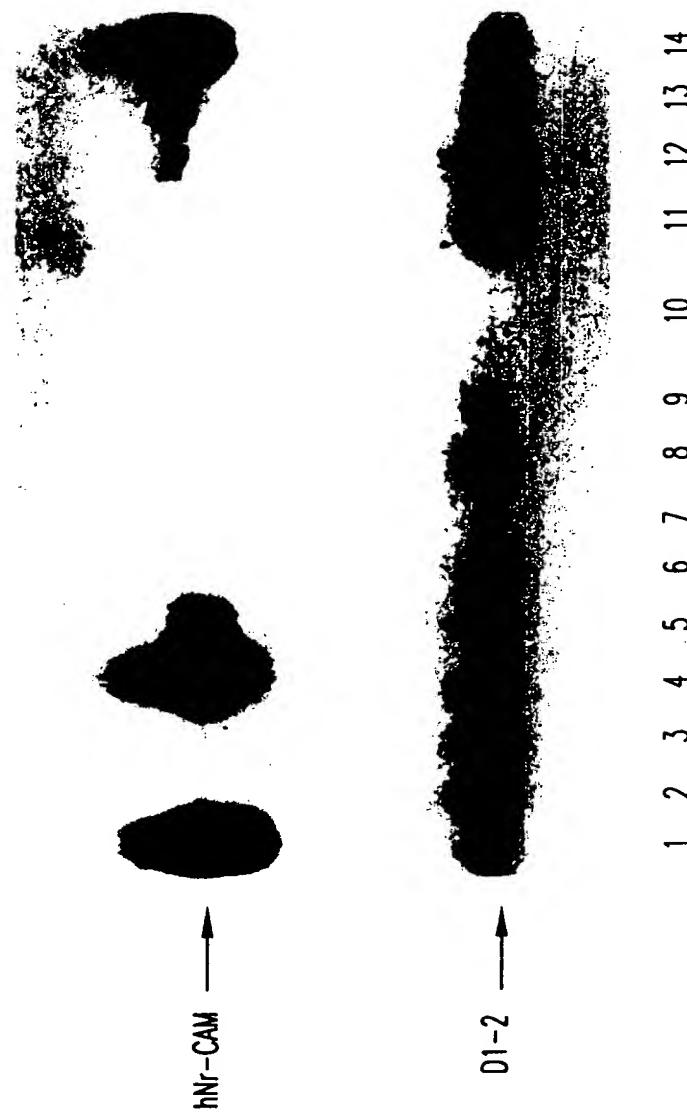
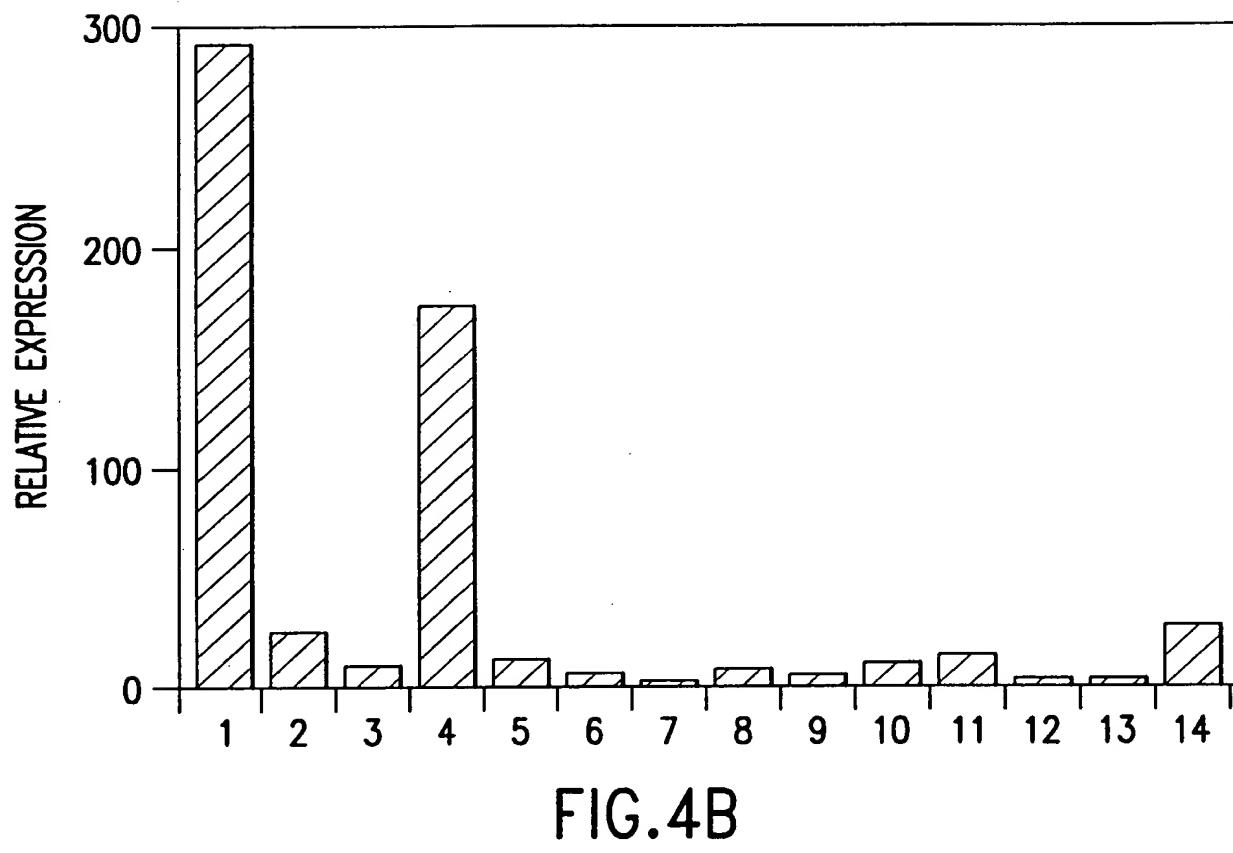


FIG.4A

8/36





Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

9/36

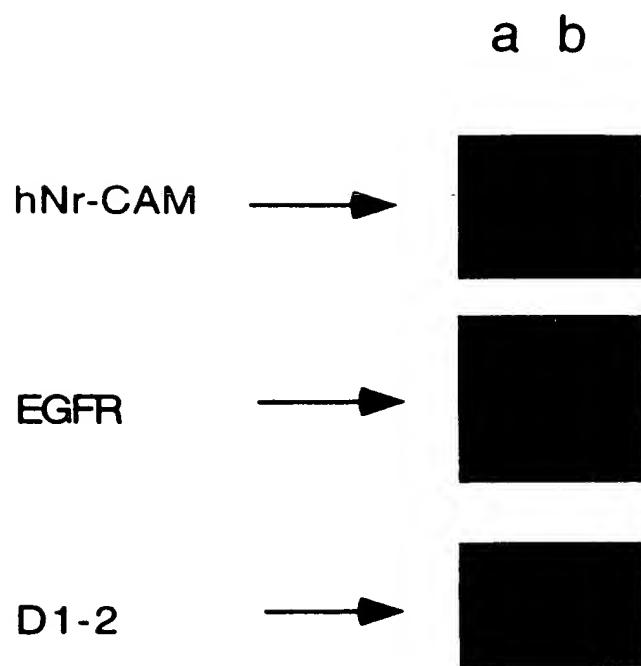


FIG.5A

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JAN 31 2003  
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TRADEMARK  
SEARCHED  
Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS

Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

10/36

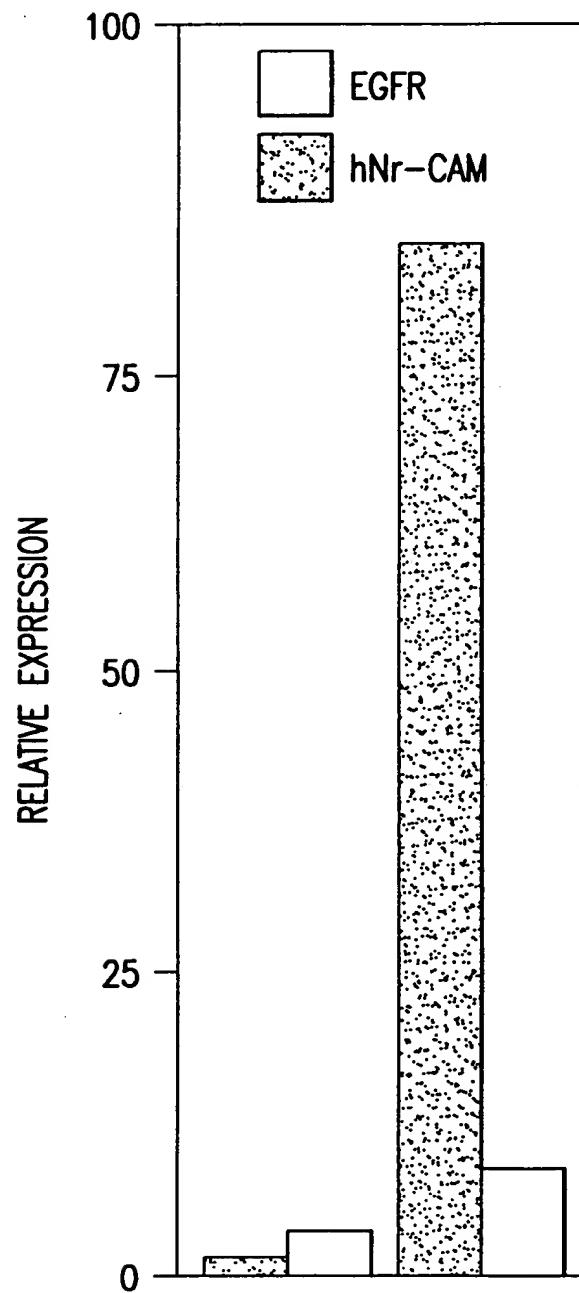


FIG.5B



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

11/36

ASTROCYTOMA III  
ASTROCYTOMA IV  
GLIOBLASTOMA  
GLIOMA  
NEUROECTODERMAL  
MEDULLOBLASTOMA  
NEUROBLASTOMA  
FNHA  
NORMAL BRAIN

**hNr-CAM** →

D1-2 →

FIG. 6A

Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS

Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380



12/36

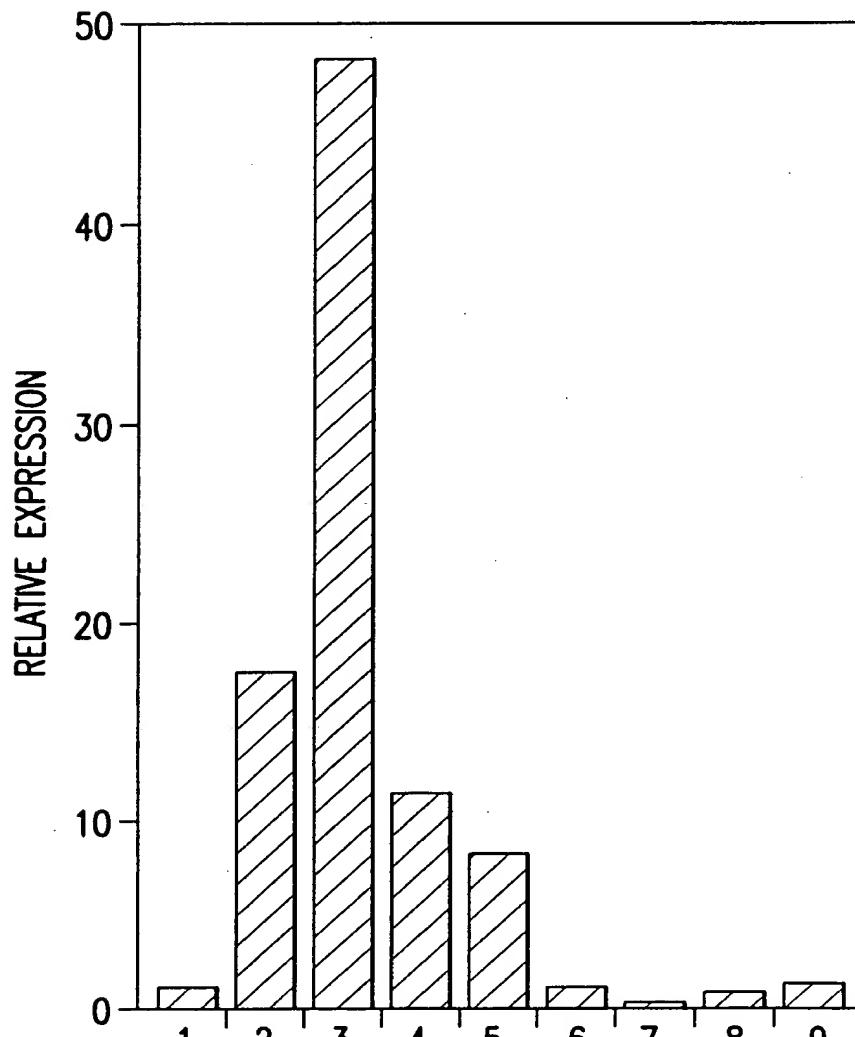
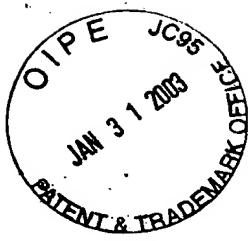


FIG. 6B



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

13/36

CEREBELLUM  
CEREBRAL CORTEX  
MEDULLA  
SPINAL CORD  
OCCIPITAL POLE  
FRONTAL LOBE  
TEMPORAL LOBE  
PUTAMEN

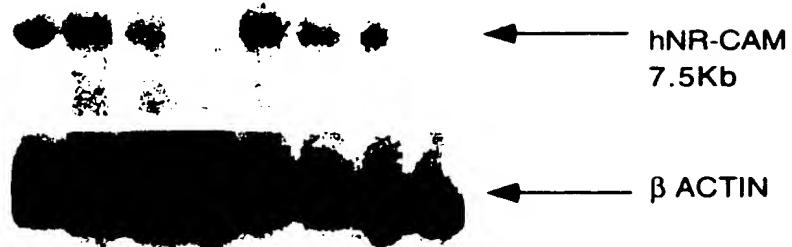


FIG. 7A



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

14/36

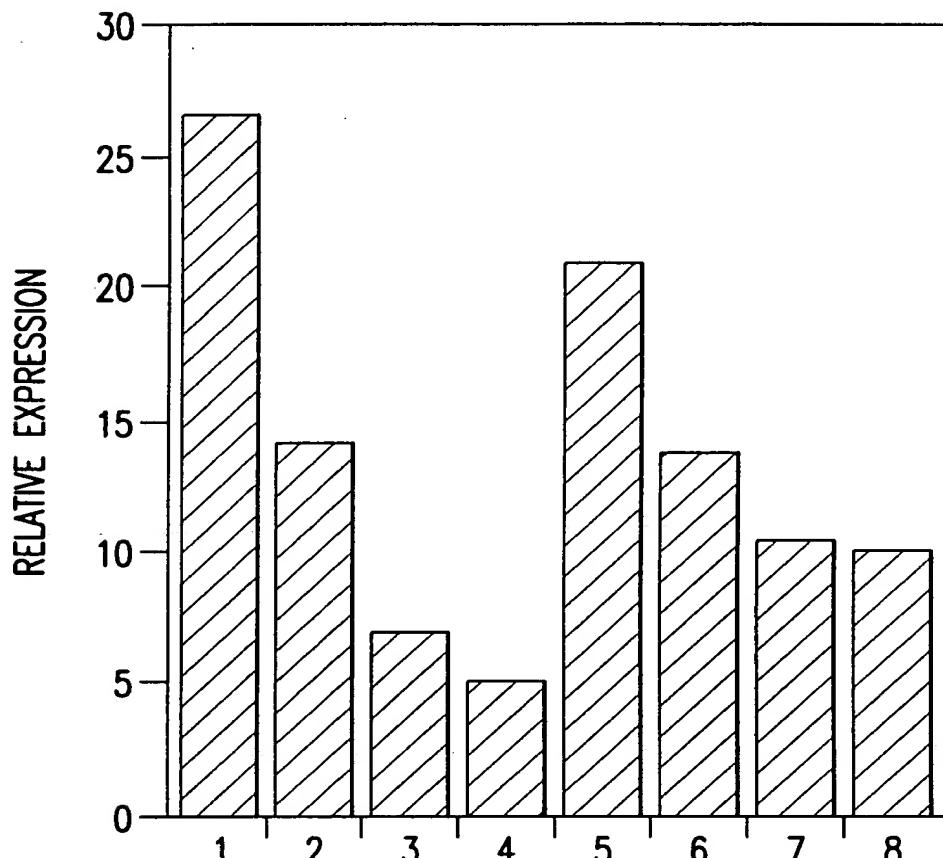


FIG. 7B

NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS

Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

15/36

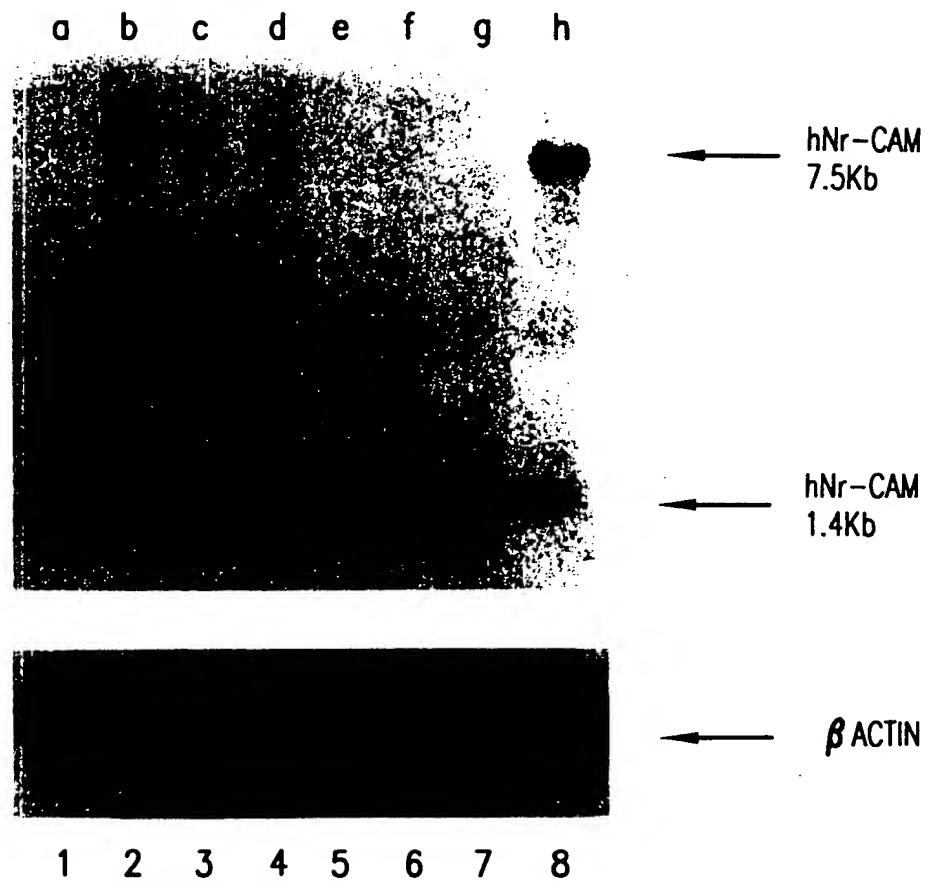
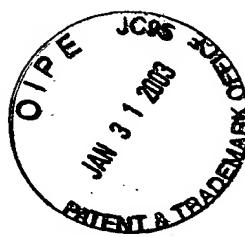


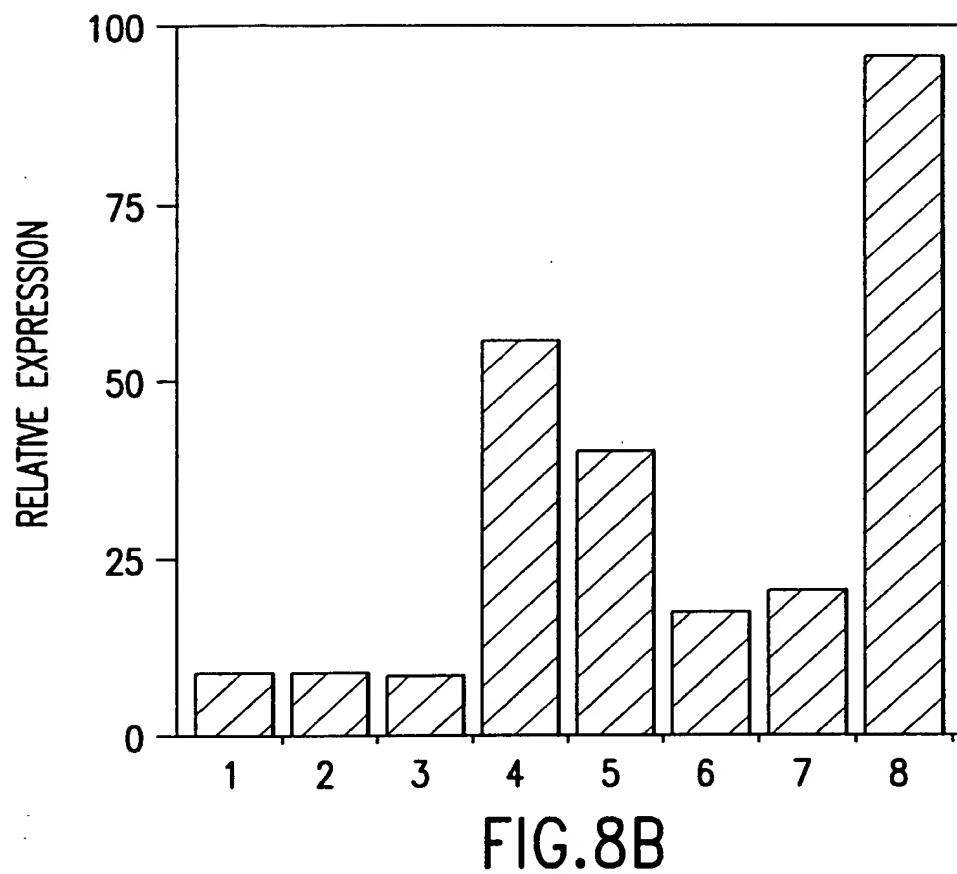
FIG.8A

Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS

Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380



16/36





Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS

Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

17/36

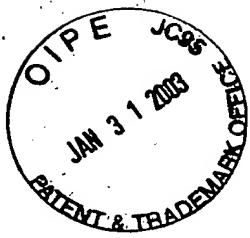
NIH 3T3  
ASTROCYTOMA III  
GLIOMA  
GLIOBLASTOMA



← hNr-CAM

1 2 3 4

FIG. 9



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

18/36

FIG. 10A

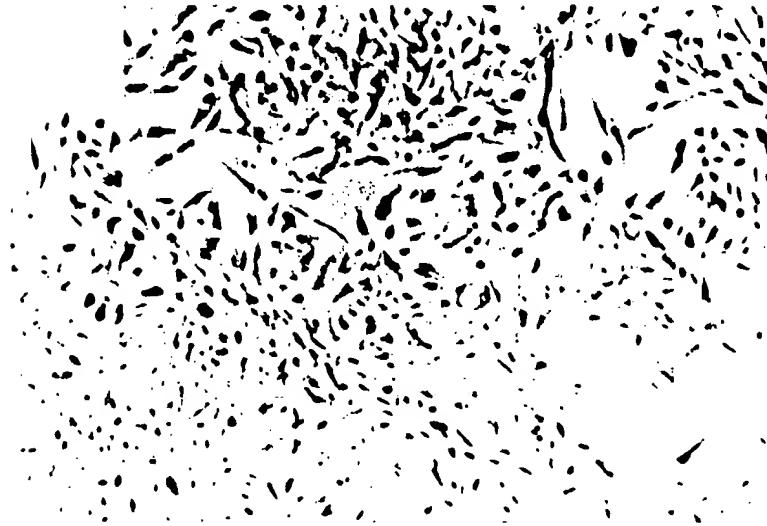


FIG. 10B



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

19/36

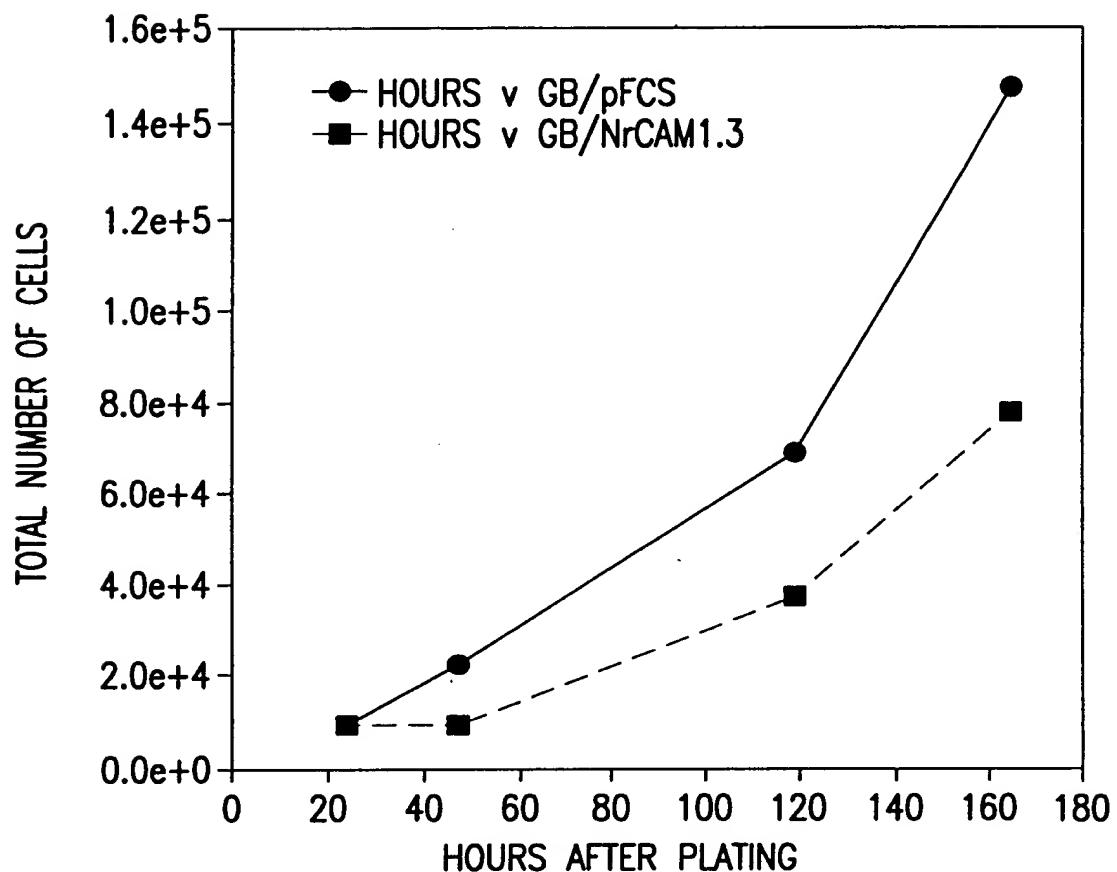


FIG. 11



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

20/36

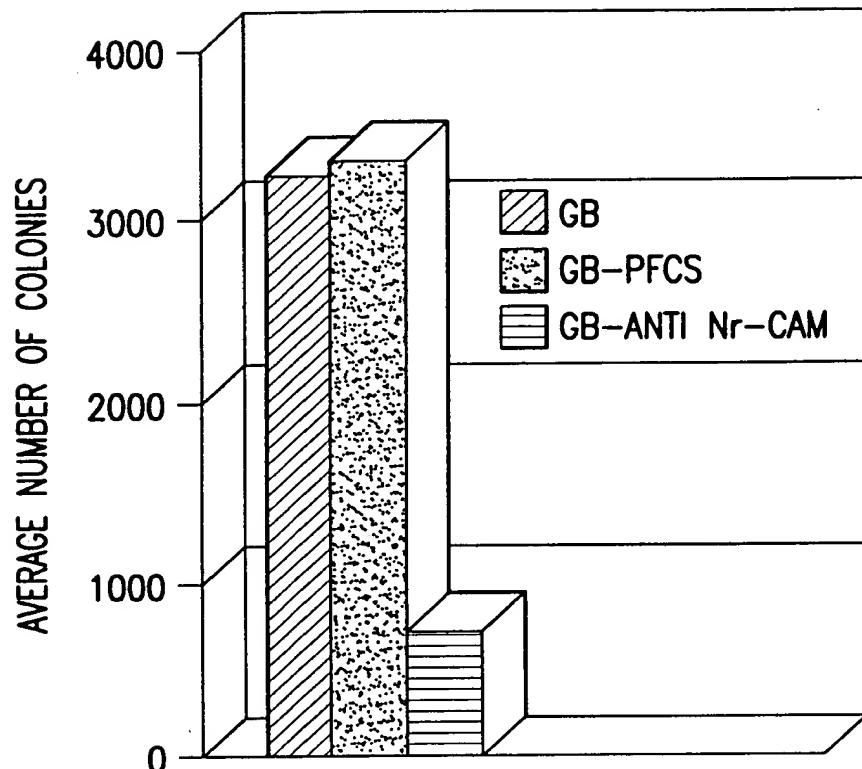


FIG.12



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

21/36

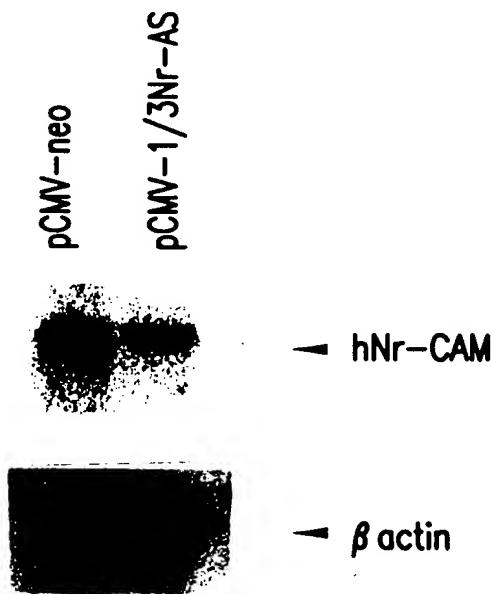


FIG. 13

22/36

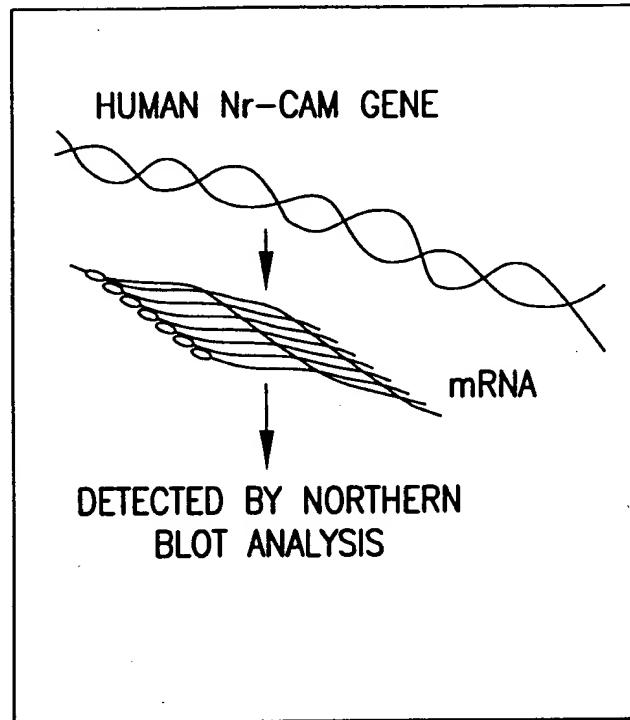


FIG.14A

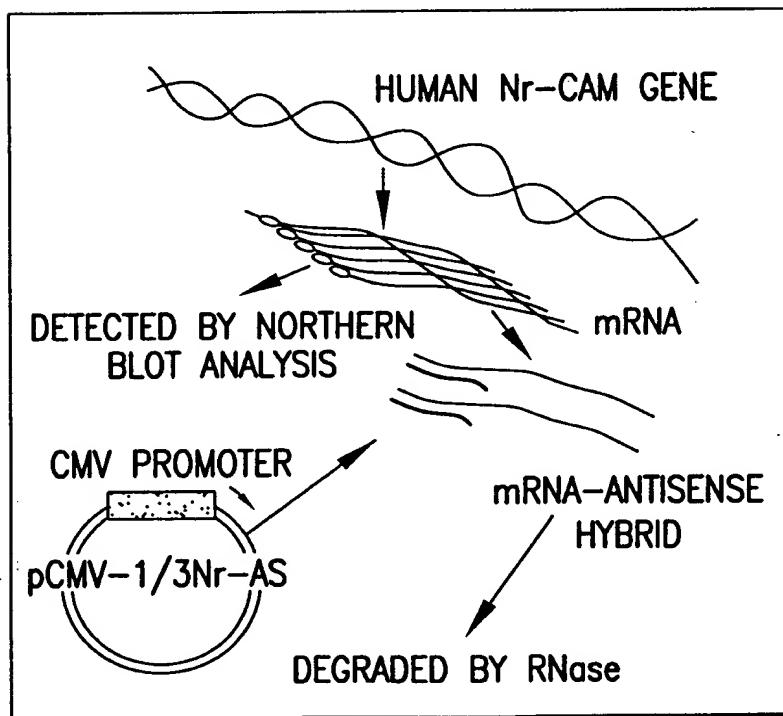


FIG.14B

Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS

Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

23/36

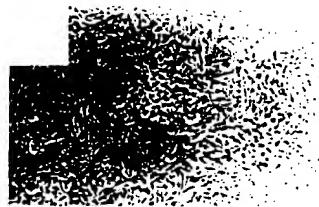


FIG. 15A



FIG. 15B

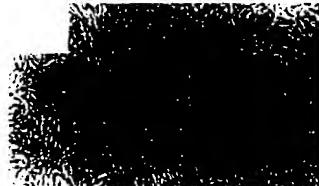


FIG. 15C



FIG. 15D

Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

24/36

FIG.16A



FIG.16B

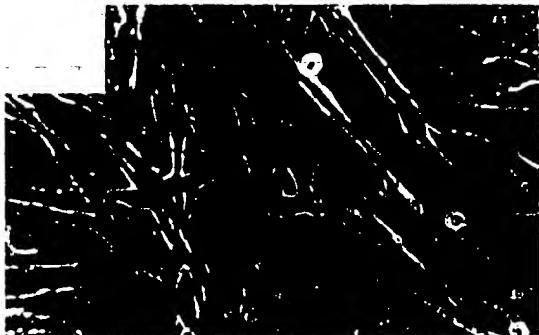


FIG.16C

FIG.16D



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS

Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

25/36

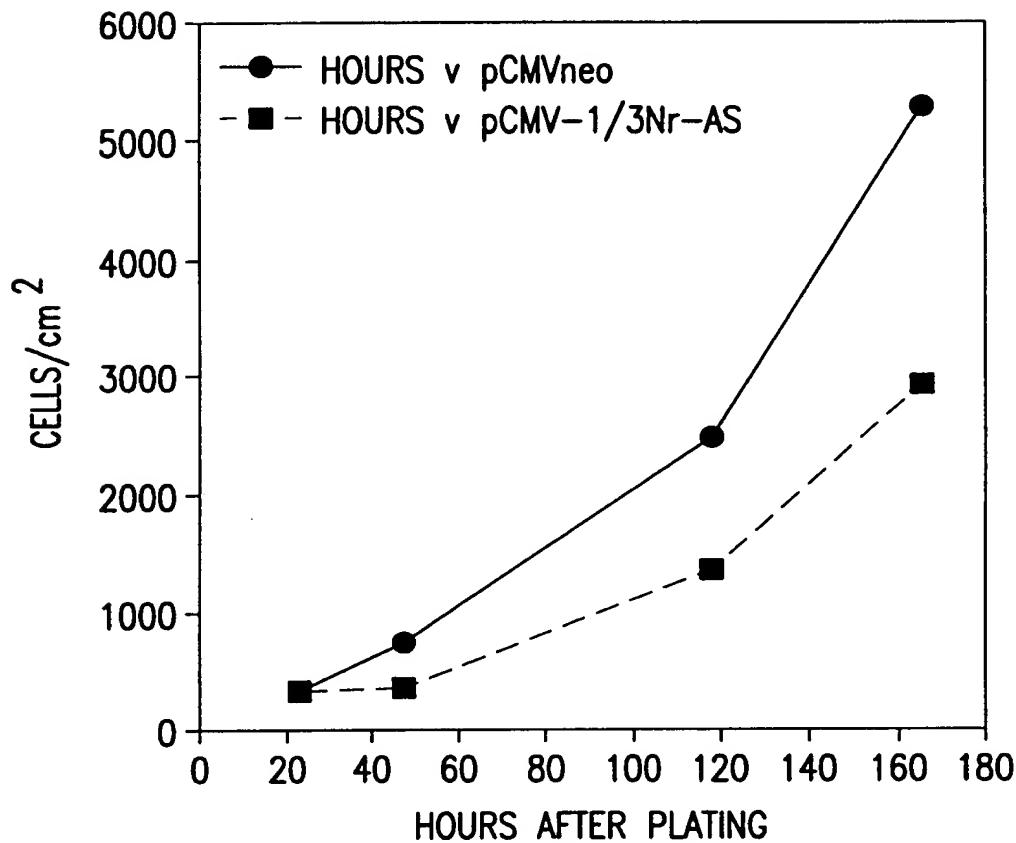


FIG.17



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES FOR TUMORS  
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Appl. No.: 09/301,380

26/36

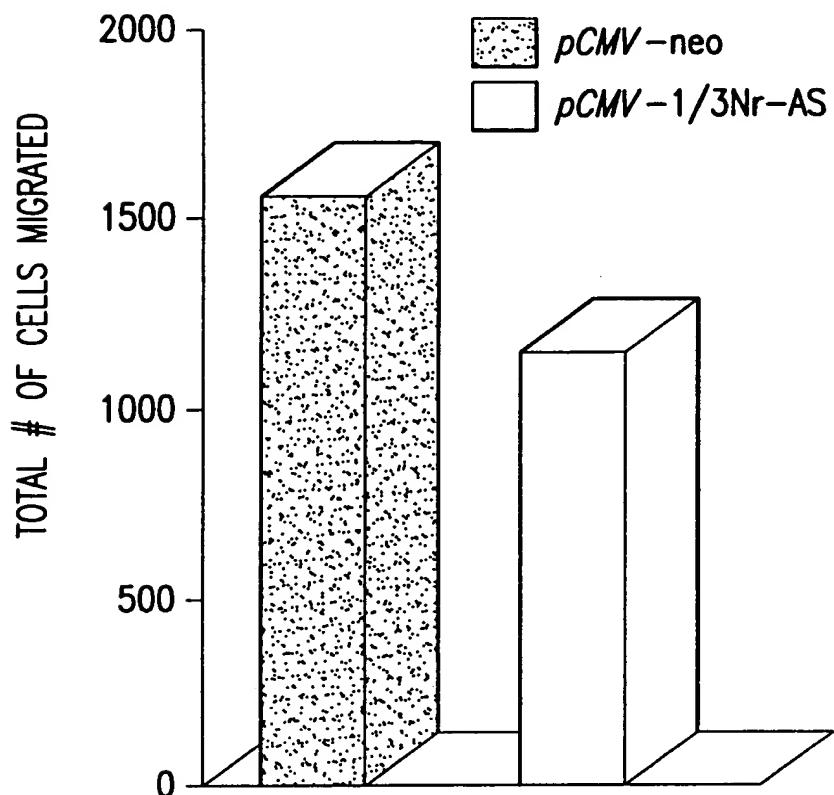


FIG. 18

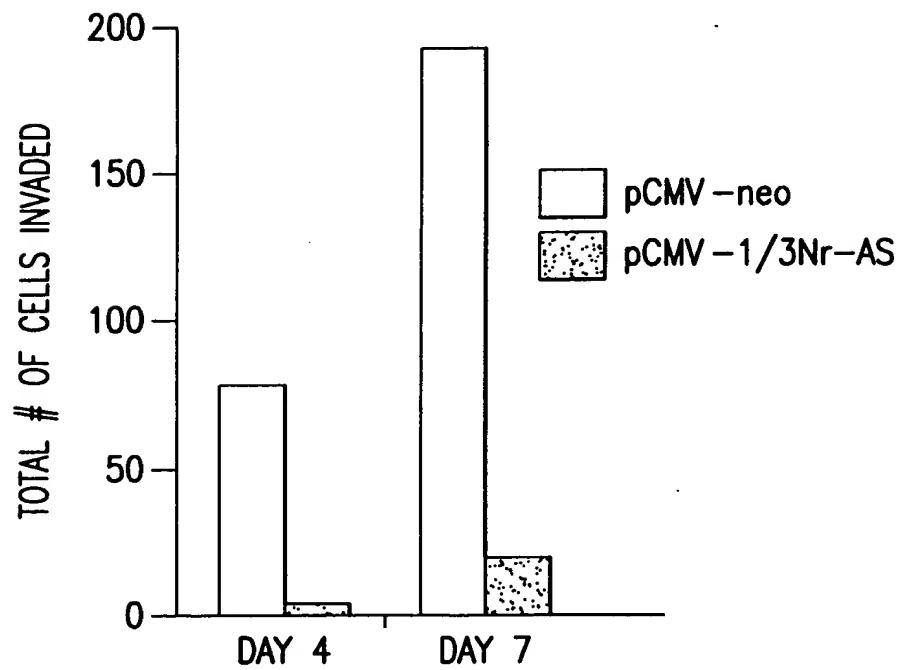


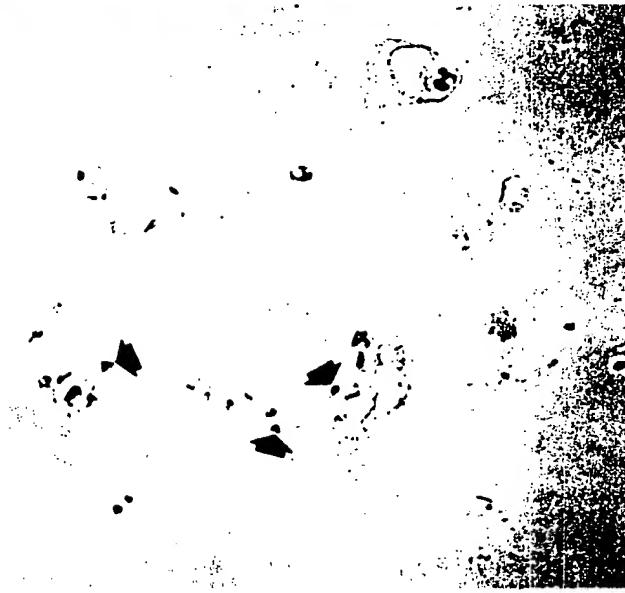
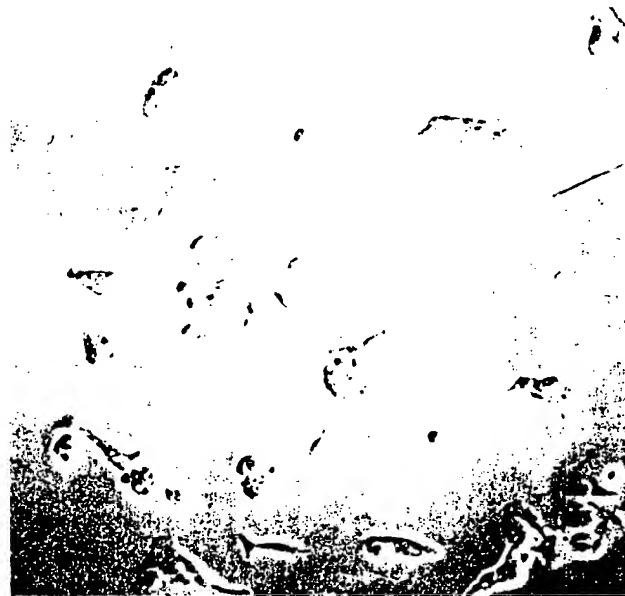
FIG. 19



T NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

27/36

**FIG.20A**



**FIG.20B**

28/36

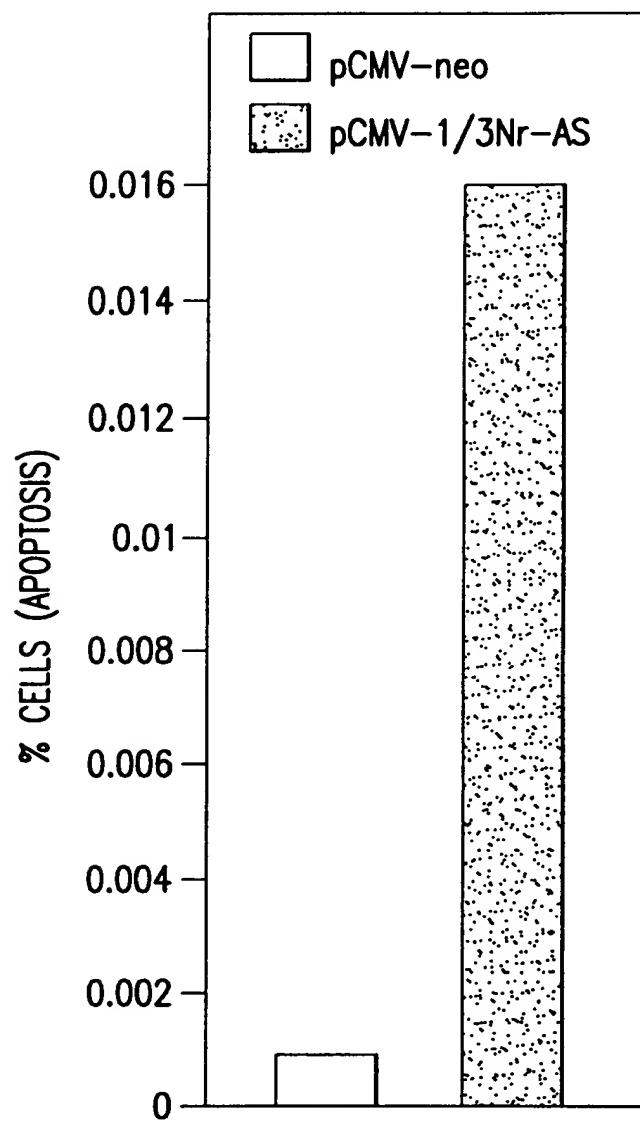


FIG.20C



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS

Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

29/36



FIG.21

O I P E  
JAN 31 2003  
PATENT & TRADEMARK OFFICE 56  
Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS

Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

30/36

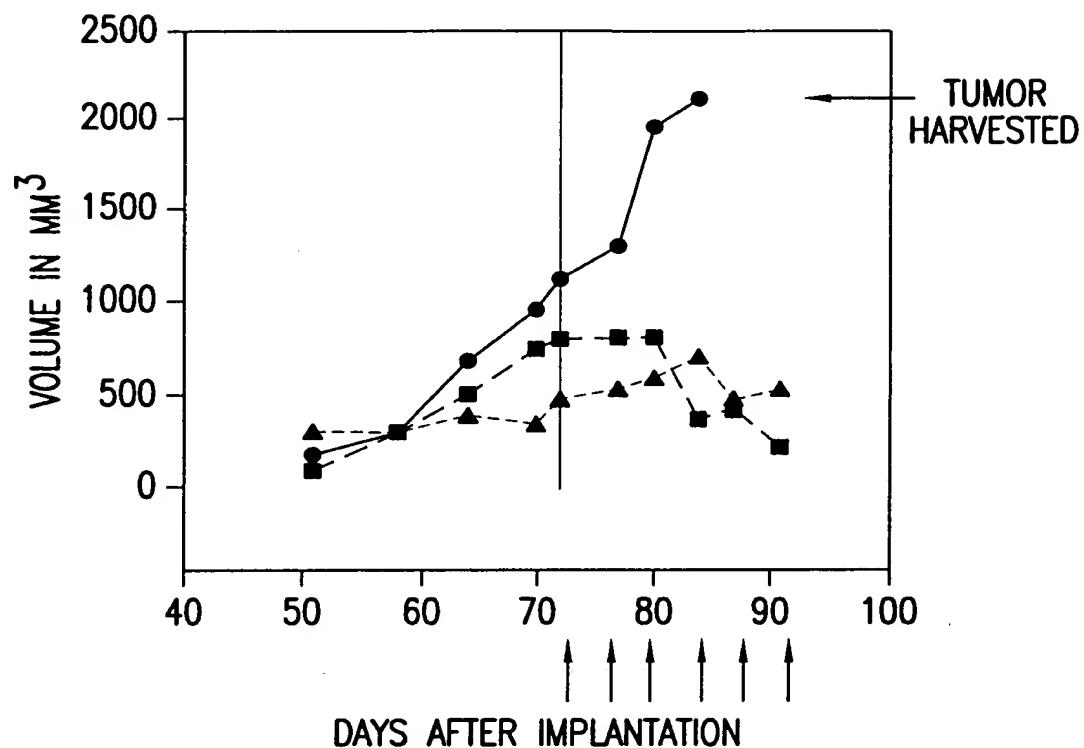


FIG.22A

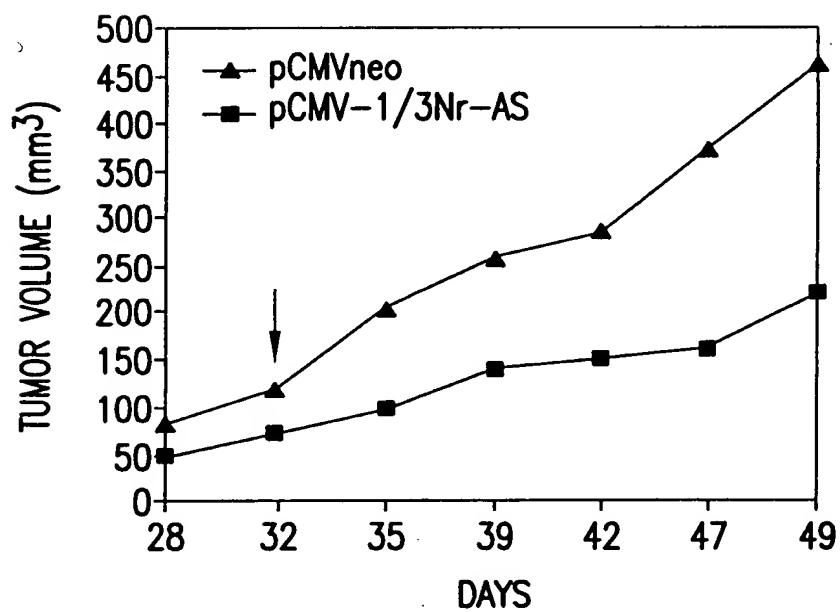


FIG.22B

O I P E  
JAN 31 2003  
PATENT & TRADEMARK OFFICE  
S 60  
T NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

31/36



Average # of colonies ( $1 \times 10^5$ )

FIG. 23A



Average # of colonies ( $1 \times 10^5$ )

FIG. 23B



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DI<sup>STIC</sup> USES  
FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

32/36

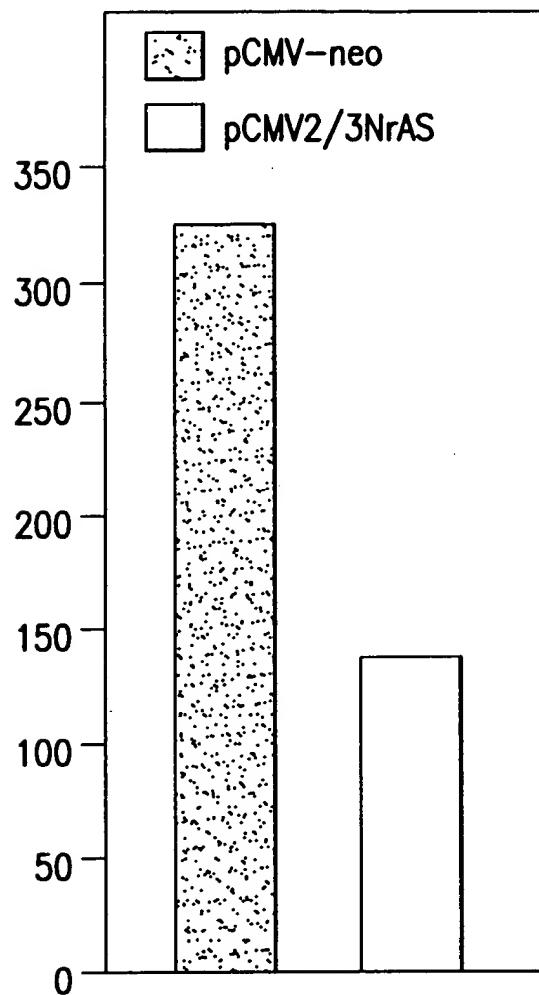


FIG.23C



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES FOR TUMORS

Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

33/36

Human Nr-CAM: 1 ATGCCGAAAAAGAAGCGTTATCTGGGGCAGAGTGCCCCTGATTCTCTTCTGTGCCAG 60  
||||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||  
Rat Nr-CAM: 19 ATGCCGAAGAAGAAGCCCTTGTCTGCAGGCAGAGCGCCCCTGTTCTCTTCTGTGCCAG 78

Human Nr-CAM: 61 ATGATTAGTGCAGTGGAAAGTACCTCTGATCCAAAACCTTCTGAAGACTGGTACAGCCT 120  
||||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||  
Rat Nr-CAM: 79 ATGATCAGCGCTCTGGATGTTCTCTGATCCAAAGCTCCTGATGACTGGTACAGCCT 138

Human Nr-CAM: 121 CCAACCACATCACCCAAACAGTCTCCAAAAGATTACATTATTGACCCCTGGGAGAAATTGTA 180  
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||  
Rat Nr-CAM: 139 CCAACTATCACTCAACAGTCACCAAAAGACTACATCATTGACCCACGGGAGAAATTGTA 198

Human Nr-CAM: 181 ATCCAGTGTGAAGCCAAGGGAAACCGCCCCAAGCTTTCTGGACCCGTAATGGACT 240  
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||  
Rat Nr-CAM: 199 ATCCAATGTGAGGCCAAAGGGAAACCTCCTCCAAGCTTTCTGGACTCGTAACGGAACA 258

Human Nr-CAM: 241 CATTGACATCGATAAGACCCCTGGTACCATGAAGCCTGGCACAGGAACGCTCATA 300  
||||| ||||| ||| ||||| ||||| ||||| ||||| ||||| ||||| |||  
Rat Nr-CAM: 259 CATTGACATAGACAAAGACCCCTGGTCACTATGAAGCCTGGCTCAGGAACCTTGTC 318

Human Nr-CAM: 301 ATTAACATCATGAGCGAAGGGAAAGCTGAGACCTATGAAGGAGTCTATCAGTGTACAGCA 360  
||| ||||| ||||| ||||| ||||| ||| ||| ||||| ||||| ||||| ||||| |||||  
Rat Nr-CAM: 319 ATCAACATCATGAGTGAAGGAAAGGCCGAGACCTATGAAGGGTTTACCAAGTGCAGTCACTGCA 378

Human Nr-CAM: 361 AGGAACGAACCGGGAGCTGCAGTTCTAATAACATTGTTCCGCCATCCAGATCACCA 420  
||||| ||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||  
Rat Nr-CAM: 379 AGGAATGAGCGCGGAGCTGCTCTCAATAACATTGTTCCGCCCTCTAGGTACCC 438

Human Nr-CAM: 421 TTGTGGACCAAGAAAAACTTGAACCAATCACACTTCAAAGTGGTCAGTCTTAGTACTT 480  
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||  
Rat Nr-CAM: 439 TTGTGGACCAAGGAAAGACTTGAACCAATAATCCTCCGAAGTGGTCAGTCAGTACTT 498

Human Nr-CAM: 481 CCCTGCAGACCCCCAATTGGATTACCACCCACCTATAATATTGGATGGATAATTCTTT 540  
||| ||| ||| ||||| ||||| ||||| ||||| ||||| ||||| |||||  
Rat Nr-CAM: 499 CCATGTAGGCCTCCAATTGGATTACCACCGGCCATAATATTGGATGGATAACTCCTTT 558

Human Nr-CAM: 541 CAAAGACTTCCACAAAGTGAGAGAGTTCTCAAGGTTGAATGGGACCTTATTTC 600  
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||  
Rat Nr-CAM: 559 CAAAGACTGCCACAGAGTGAGCGGGTTCCCAAGGACTGAATGGAGACCTTACTTC 618

Human Nr-CAM: 601 AATGTCCTCCCAGAGGACACCCGCGAAGACTATATCTGTTATGCTAGATTAATCATACT 660  
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||  
Rat Nr-CAM: 619 AATGTCCTCCCAGAGGACACCCGCGAAGACTATATCTGTTATGCTAGATTAATCATACT 678

Human Nr-CAM: 661 CAAACCACATACAGCAGAACCTATTCTGTGAAGGTGATTCAGTGGATGAATTGAAT 720  
||||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||  
Rat Nr-CAM: 679 CAAACAAATTCAACAGAACACCTATTCTGTGAAGGTGATTCAGTGGATGAATTGAAT 738

FIG.24A



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DI<sup>STIC</sup> USES  
FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

34/36

Human Nr-CAM:	721	GACACTATAGCTGCTAATTGAGTGACACTGAGTTTATGGTCTAAATCAAGTAGAGAG 780
Rat Nr-CAM:	739	GACACTATAGCTGCTAATTGAGTGACACTGAGTTTATGGTCTAAATCTAGTAAAGAG 798
Human Nr-CAM:	781	AGGCCACCAACATTTAACCTCCAGAAGGCAATGCAAGTAACAAAGAGGAATTAAGAGGA 840
Rat Nr-CAM:	799	AGGCCACCAACATTTCTAACCTCCAGAGGGCAATGAAAGTCACAAGGAAGAATTAAGAGGA 858
Human Nr-CAM:	841	AATGTGCTTCACTGGAGTGCTTGCAGAAGGACTGCCTACCCATTATTACTGGCA 900
Rat Nr-CAM:	859	AACGTGCTTCCCTGGAGTGCTTGCAGAAGGCCTACCTACTCCAGTTATTACTGGATC 918
Human Nr-CAM:	901	AAGGAAGATGGAATGCTACCCAAAAACAGGACAGTTATAAGAACCTTGAGAAAACCTTG 960
Rat Nr-CAM:	919	AAGGAAGATGGAACGCTTCTGTCAACCGGACGTTTATCGGAACCTTAAGAAAACCTTG 978
Human Nr-CAM:	961	CAGATCATTGATTTCAGAAGCAGACTCTGGAAATTACCAATGTATAGCAAAAAATGCA 1020
Rat Nr-CAM:	979	CAGATCATTGATGTCCTGAAGCAGACTCTGGAAATTATCAGTCATAGCAAAAAACGCA 1038
Human Nr-CAM:	1021	TTAGGAGCCATCCACCATACCATTCTGTTAGAGTTAAGCGGCTCCATACTGGATCACA 1080
Rat Nr-CAM:	1039	TTGGGAGCCGTCCATCACCATTTCTGTCACAGTTAAGCGGCTCCACTGGATTGTT 1098
Human Nr-CAM:	1081	GCCCCCTAAATCTTGCTGCTCCCCAGGGAGAGGATGGACCTGATCTGCAGAGCTAAT 1140
Rat Nr-CAM:	1099	GCACCTCACACCTCGTCTTCCCCAGGGGAGAATGGGACCCATCTGCAGAGCTAAC 1158
Human Nr-CAM:	1141	GGCAACCCAAACCCAGAATTAGCTGGTTAACAAATGGAGTCCAATAGAAATTGCCCT 1200
Rat Nr-CAM:	1159	GGCAACCCAAACCCAGAATTAGCTGGTTAACAAATGGAGTCCCAGTAGAAATTGCTCTC 1218
Human Nr-CAM:	1201	GATGACCCCAGCAGAAAAATAGATGGCGATACCATTATTTTCAATGTTCAAGAAAGA 1260
Rat Nr-CAM:	1219	GATGACCCCAGCCGAAAAATCGATGGTGATACCATTATGTTCAATGTTCAAGAAAGC 1278
Human Nr-CAM:	1261	TCAAGTGCAGTATATCAGTGCATGGCTAACACACGAACTCTCACACCTGCAAACACA 1320
Rat Nr-CAM:	1279	TCAAGTGCCTTATCAGTGCATGGCTAACAAATGGATATTACTAGCAAATGCA 1338
Human Nr-CAM:	1321	TTTGAAATGTGCTGGCTGCCACCAACGAATCCTCACACCTGCAAACACA 1371
Rat Nr-CAM:	1339	TTTGAAATGTGCTCGCTGAACCACCTCGGATTCTACCTCAGCAAACACA 1389

FIG. 24A (CONT')



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES FOR TUMORS

Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

35/36

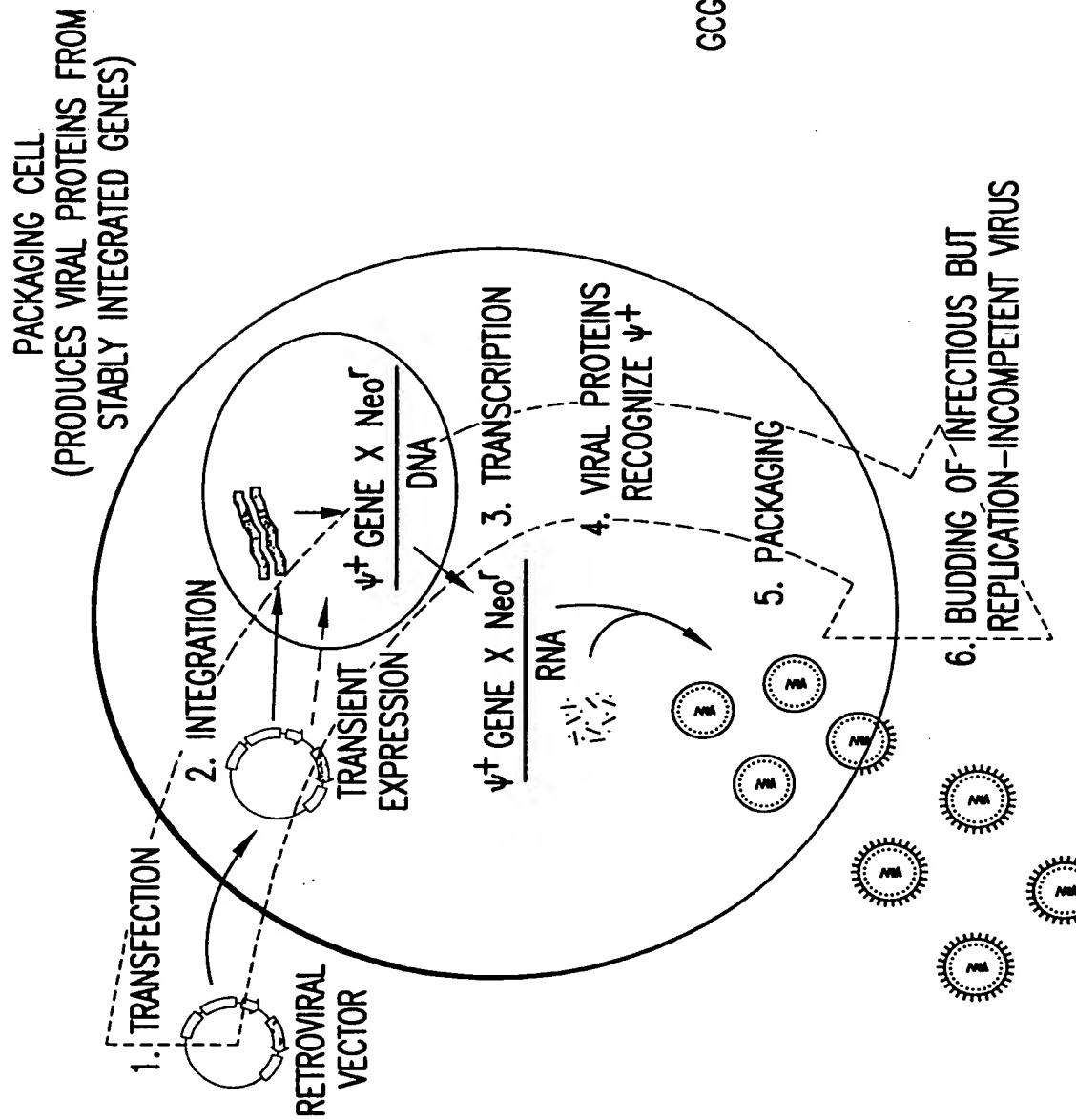


FIG. 25B

CCCCCGGAATTCTGGTTAACCTCGAGGATCCGCCTGTC  
EcoRI HpaI XbaI BamH I

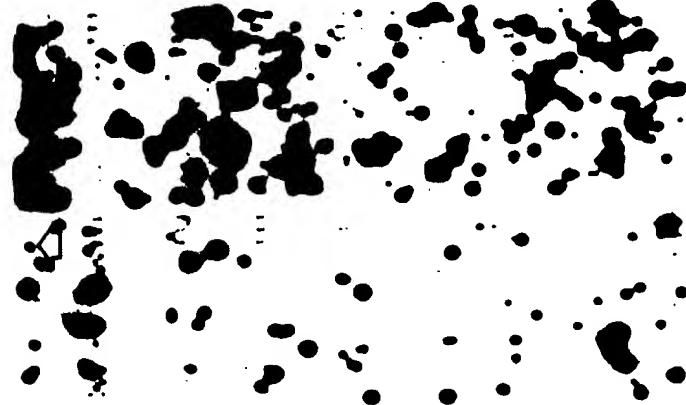
FIG. 25A



Title: NR-CAM GENE, NUCLEIC ACIDS AND NUCLEIC ACID  
PRODUCTS FOR THERAPEUTIC AND DIAGNOSTIC USES  
FOR TUMORS  
Applicants: Gerald P. Murphy *et al.*  
Appl. No.: 09/301,380

36/36

## **pCMV-1/3Nr-AS**



**FIG.26A**

## **pCMV-neo**



**FIG.26B**